AMENDMENTS TO THE CLAIMS

This listing of the claims will replace all prior versions and listing of the claims in this application.

1-36. (Canceled)

37. (Currently amended) A method for forming multicomponent glass particles and spraying the glass particles to a target, the method comprising:

supplying a fuel gas through a nozzle of a spraying device to produce a flame outside of the nozzle;

introducing oxygen through the nozzle to the flame;

introducing a first glass component through a gas tube through the nozzle to the flame such that the first glass component reacts in the flame to form first oxide particles, wherein the first glass component consists of a gaseous or vaporous substance;

introducing a second glass component through a liquid tube separate from the gas tube through the nozzle to a vicinity of the flame, wherein the second glass component comprises a liquid solution containing a rare earth metal;

introducing an atomizing gas through the nozzle to the vicinity of the flame;

atomizing the second glass component with the atomizing gas in the vicinity of the flame so as to form second oxide particles in the flame; and

wherein the first oxide particles and the second oxide particles combine with each other in the flame so as to form multicomponent glass particles comprising the rare earth metal.

38. (Previously presented) The method according to claim 37, wherein said first glass component, said second glass component and said fuel gas are supplied to the flame coaxially.

39. (Previously presented) The method according to claim 38, wherein said first glass component is silicon or germanium tetrachloride and said second glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.

40. (Currently amended) The method according to claim 37, wherein said first glass component is silicon or germanium tetrachloride and said second glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.

41. (Previously presented) The method according to claim 37, wherein said multicomponent glass particles are homogenous multicomponent particles.

42. (Currently amended) A method for forming multicomponent glass particles and spraying the glass particles to a target, the method comprising:

supplying a fuel gas through a nozzle of a spraying device to produce a flame outside of the nozzle;

introducing oxygen through the nozzle to the flame;

introducing a first glass component through a first gas tube through the nozzle to the flame such that the first glass component reacts in the flame to form first oxide particles, wherein the first glass component consists of a gaseous or vaporous substance, said gaseous or vaporous substance comprising silicon tetrachloride or germanium tetrachloride;

introducing a second glass component through a liquid tube through the nozzle to a vicinity of the flame, wherein the second glass component is a solution containing (a) rare earth ion, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol;

introducing an atomizing gas through a second gas tube through the nozzle to the vicinity of the flame;

atomizing the second glass component with the atomizing gas in the vicinity of the flame so as to form second oxide particles in the flame; and

wherein the first oxide particles and the second oxide particles combine with each other in the flame so as to form multicomponent glass particles comprising rare earth metal.

43. (Previously presented) The method according to claim 42, wherein said first glass component, said second glass component and said fuel gas are supplied to the flame coaxially.

44. (Previously presented) A method for forming multicomponent glass particles and spraying the glass particles to a target using a spraying device, the spraying device comprising a burner including a plurality of tubes terminating at a nozzle face for delivering material to be used in forming the multicomponent glass particles, the method comprising:

supplying a fuel gas through a first tube and through the nozzle of the spraying device to produce a flame outside of the nozzle;

introducing oxygen through a second tube and through the nozzle to the flame;

introducing a first glass component through a third tube of said plurality of tubes through the nozzle and to the flame such that the first glass component reacts to form first oxide particles in the flame, wherein the first glass component in the third tube consists of a gaseous or vaporous substance;

introducing a second glass component through a liquid tube of said plurality of tubes and through the nozzle to a vicinity of the flame outside of the nozzle, wherein the second glass component consists of a liquid solution containing a rare earth metal;

introducing an atomizing gas through the nozzle to the vicinity of the flame;

atomizing the second glass component with the atomizing gas in the vicinity of the flame so as to form second oxide particles in the flame; and

wherein the first oxide particles and the second oxide particles combine with each other in the flame so as to form multicomponent glass particles comprising the rare earth metal.

45. (Previously presented) The method according to claim 44, wherein said first glass component is silicon or germanium tetrachloride and said second glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.

46. (Previously presented) A method for forming multicomponent glass particles and spraying the glass particles to a target, the method comprising:

supplying a fuel gas through a nozzle of a spraying device to produce a flame outside of the nozzle;

introducing oxygen through the nozzle to the flame;

introducing a first glass component through the nozzle to the flame such that the first glass component reacts in the flame to form first oxide particles, wherein the first glass component consists of a gaseous or vaporous substance;

introducing a second glass component through the nozzle to a vicinity of the flame, wherein the second glass component comprises a liquid solution containing a rare earth metal; and

atomizing the second glass component with the fuel gas in the vicinity of the flame downstream of the nozzle so as to form second oxide particles in the flame;

wherein the first oxide particles and the second oxide particles combine with each other in the flame so as to form multicomponent glass particles comprising the rare earth metal.

47. (Previously presented) The method according to claim 46, wherein said first glass component, said second glass component and said fuel gas are supplied to the flame coaxially.

48. (Previously presented) The method according to claim 47, wherein said first glass component is silicon or germanium tetrachloride and said glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.

49. (Previously presented) The method according to claim 47, wherein said first glass component is silicon or germanium tetrachloride and said second glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.

50. (Previously presented) The method according to claim 46, wherein said multicomponent glass particles are homogenous multicomponent particles.

51. (Previously presented) A method for forming multicomponent glass particles and spraying the particles to a target by a spraying device comprising a nozzle and a burner which comprises a liquid tube, a first gas tube, a second gas tube and a third gas tube, wherein the liquid tube, the first gas tube, the second gas tube and the third gas tube end at said nozzle, the liquid tube and the first gas tube being arranged in such a manner that the first gas tube surrounds the liquid tube, the method comprising:

supplying fuel gas through the first gas tube to the nozzle to produce a flame outside of the nozzle;

introducing oxygen through the third gas tube and the nozzle to the flame;

introducing a first glass component in a solely gaseous or vaporous form through the second gas tube and the nozzle to the flame such that the first glass component reacts to form first oxide particles in the flame, the first glass component comprising silicon tetrachloride or germanium tetrachloride;

introducing a second glass component through the liquid tube and the nozzle to a vicinity of the flame outside of the nozzle, wherein the second glass component comprises a liquid solution containing a rare earth metal;

atomizing the second glass component with the fuel gas in the vicinity of the flame so as to form second oxide particles in the flame; and

wherein the first oxide particles and the second oxide particles combine with each other in the flame so as to form multicomponent glass particles comprising the rare earth metal.

52. (Previously presented) The method according to claim 51, wherein said second glass component is a solution containing (a) erbium nitrate, (b) water or alcohol, and (c) a form of aluminum which is soluble in water or alcohol, such that multicomponent glass particles can be formed to manufacture active fiber.